Development of a shoot multiplication system for hop (Humulus lupulus L.)

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Résumé / Abstract

Nodal explants from hop were exposed to plant growth regulators to determine suitable media for initiation from axillary buds and subsequent micropropagation. Efficient culture establishment (96.6% of explants) was achieved on Murashige and Skoog (MS) medium (modified to contain 1 mg l^{-1} thiamine hydrochloride) supplemented with 0.57 µM indoleacetic acid (IAA) and 2.22 µM 6-benzylaminopurine (BA). Subsequent transfer of explants to treatments containing an auxin ([1-naphthaleneacetic acid] NAA or IAA) and BA, 6-[γ,γ-dimethylallylamino]purine (2iP), kinetin (KIN) or thidiazuron (N-phenyl-N'-1,2,3.-thidiazol-5-ylurea [TDZ]) resulted in significantly different amounts of multiplication. Optimal TDZ-supplemented media elicited a greater than threefold increase in the number of shoots and nodes generated per explant compared to optimal media containing BA, 2iP and KIN. Shoots were successfully rooted using half-strength MS supplemented with 5.71 µM IAA and 4.9 µM indolebutyric acid (IBA), and regenerated plants were successfully transferred to soil. An overall micropropagation schedule, which can be implemented into hop commercialization programs, includes: (i) establishment in MS with 0.57 µM IAA and 2.22 pM BA; (ii) multiplication in MS with 0.57 pM IAA and 2.27 pM TDZ; (iii) elongation in MS; and (iv) rooting in half-strength MS with 5.71 µM IAA and 4.9 µM IBA.